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MAKING THE MOST OF YOUR INTELLIGENCE

by Lyle M. Spencer
and Ruth Dunbar

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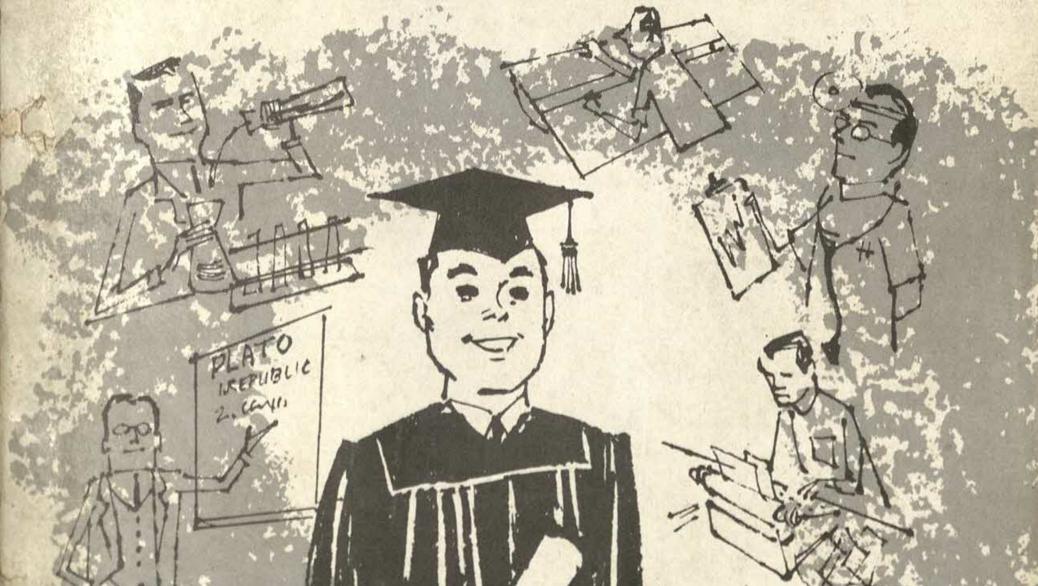

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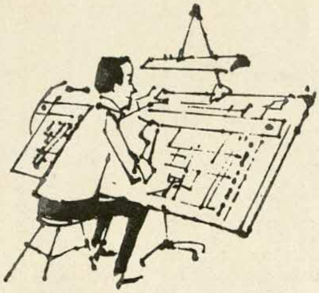

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YOUR INTELLIGENCE

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CONTENTS

1 THEY SAY YOU'RE INTELLIGENT........................ 2
2 WHAT WE KNOW ABOUT INTELLIGENCE...................10
3 CAREERS THAT TAKE BRAINS..........................19
4 PLANNING YOUR EDUCATION...........................30
5 LIVING WITH YOURSELF AND OTHERS...................38
6 MEETING THE NEED..................................45

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one

THEY SAY YOU'RE INTELLIGENT!

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Your classmates call you a *brain!* Your teachers probably say you're *gifted*. Or maybe they describe you as *superior*, *able*, or *exceptional*.

Whatever the term, it means you are most fortunate. You've got something that money can't buy—the priceless gift of high intelligence. If you make the most of it, it can be your key to happiness, a successful career, and a place of honor in your community. From your ranks will come the future doctors, scientists, teachers, business executives, lawyers, statesmen, inventors, and leaders in most fields of worthwhile endeavor.

In personal life, too, brains are to your advantage. They make you more alive to what's going on around you and they expand your capacity for enjoyment. They strengthen your ability to shape your own destiny. If you aren't satisfied with the way things are going, you have better than average potential to figure out how to change the situation.

Spotlight on talent

No doubt most of you have known for some time that you're bright. You could hardly escape drawing that conclusion if schoolwork comes easy for you and if you're an honor-roll student. Perhaps you've taken standardized tests of intelligence or achievement and have been told that you scored high. These tests are evidence of your brain power, even if your grades haven't been outstanding.

In some school systems, you might even have been singled out for special attention. A few schools provide separate classes for rapid learners. Others try to enrich the education of their most capable students by having them do extra work on their own. Some elementary schools will let a bright boy or girl skip a grade.

Today, more and more educators are paying special attention to students like you. They are trying to provide more opportunities for you to develop your unusual gifts and to grow mentally just as fast as you are capable of growing.

Brains are a responsibility too

Attention is focused on the bright student as never before. Why? First, because there is a tremendous need for people with intelligence—and proper training—to handle the increasing number of highly skilled jobs in our complex, 20th-century civilization. Second, because for his own satisfaction and future happiness, each individual needs to develop his abilities to the fullest.

Such attention is pleasant. But it's important for you to realize that being at the top of your generation in brain power involves a responsibility to society. Already, much is asked of you; you are expected to do more than the student of average ability. In the future, even more will be expected from you.

Great things are *expected* but they are not *demanded* of you, for we live in a free country. The blueprint for your future is up to you. But if you understand both your own potential and the nation's need for well-trained, superior brains, we believe you will want to use your ability for the benefit of society.

Did you ever stop to think that brains are the greatest resource a nation has? America has achieved its high standard of living and its leading role in world affairs through the contributions of men and women of exceptional intelligence. As our

The career you plan should make the most of your superior abilities.

culture grows more complex, the trained skills of the highly intelligent are needed even more desperately.

Dael Wolfle, in a report entitled *America's Resources of Specialized Talent*, points out that our nation needs trained intellectual power for its very survival:

> There is a lesson too in the present international tug of war: survival itself may depend upon making the most effective use of the nation's intellectual resources. . . . The recognition that much of America's strength comes from its educational accomplishments has led other nations to attempt a similar road to national strength. . . . As a result, Russia is increasing her supply of management experts, engineers, scientists, doctors, and other professional men and women as rapidly as is the United States, and in some fields more rapidly.

So that head on your shoulders puts a weight on your shoulders as well. Neither you nor society can afford to waste your exceptional abilities.

Planning your future

Unfortunately, many bright young people aren't smart about their futures. Many are impatient with the long preparation needed for the roles gifted individuals should play in society. Or they become discouraged by obstacles which, in most cases, could be overcome. Later, when they find themselves trapped in blind-alley careers, far below the level at which they are capable of functioning, they become unhappy and frustrated.

You are at an important landmark in your life. It is during high school years that students must decide whether to go on to college and, if so, what course to take. Although it isn't necessary to settle on a specific career at this time, it is advisable to narrow down the possibilities to certain fields. This is especially true for future scientists and engineers.

This booklet will help you make such decisions by enabling you to understand some of the implications of having brains. It will discuss the educational and vocational planning you should be starting now. It also will point out some of the problems and the pitfalls that bright people face. For although you are starting out a lap ahead of the rest of your generation, your course won't all be smooth and easy.

One of your first tasks is to understand yourself as well as you can. Every bright person is different. He has different dreams, skills, motivations and interests. You'll want to discover yours.

Your future is full of promise and more than the average person you are the captain of your fate. If you're smart, you'll learn all you can about navigating toward your goals with full steam ahead.

One point should be made clear in our discussion of gifted individuals. This booklet is meant for students with high general ability which can be measured by intelligence tests. Other students in your class may have exceptional talent in a certain field, such as art or music, or they may be outstanding leaders. Their talents are equally important to society, and sometimes the term "gifted" is applied to these young people as well. But our discussion will deal only with the *intellectually* gifted student.

What kind of person is a gifted youth? Of course we can't tell you what particular combination of cells and qualities makes you the unique individual that you are. But we do know quite a bit about the typical characteristics of gifted people.

Outdated ideas

There's an old-fashioned idea, thoroughly discredited but still floating around, that bright children are a bit queer. They're supposed to be owlish bookworms. When they don't have their noses in books, they are walking around with their heads in the clouds, lost in daydreams.

According to this moth-eaten theory, the "brain" is a social flop. If a boy, he's supposed to be a pale-faced, stoop-shouldered genius who curls up in a corner reading Einstein while his classmates play football. If a girl, she's a wallflower, wistfully waiting while her less brainy and gayer classmates get the dates. The idea seems to be that a "brain" misses all the fun.

Many people still think of the genius as a bespectacled bookworm.

This was the common concept of a gifted youth until a generation ago. Then psychologists turned their research spotlights on bright young people to see what they were really like.

The truth about gifted students, established by scientific research, is that they usually are well-rounded individuals and have attractive personalities. As a group, they excel not only in intelligence, but in physical, emotional, and social development.

You're probably wondering how such an idea gained currency and why it still pops up occasionally in cartoons where the child prodigy is portrayed as a frail character with a peaked face dwarfed by enormous, horn-rimmed spectacles. Part of the explanation, undoubtedly, is that the average person sometimes regards the bright individual with a mixture of jealousy and suspicion. Another reason for the grotesque misconception is that, sad to say, there *are* some gifted youngsters who fit the description. It is quite possible, though it isn't probable and certainly isn't necessary, to become lopsided when you're top-heavy with brains. Some very smart individuals—just like some average people—are social misfits and eccentrics. They provide the prototype for the cartoon version of the genius.

A study of gifted people

But let's look at the typical gifted youngster. Much of what we know about him was discovered by Lewis M. Terman, a Stanford University professor who followed the development of some 1,500 brilliant minds from childhood to adulthood. Those chosen for his experiment were California children who ranked in the top one per cent of their age group on intelligence tests.

1. Physical development

Physically, Terman found, the gifted children were somewhat heavier, taller, and stronger than their playmates. They had broader shoulders, tougher muscles, and bigger lung capacity. It seems brains and brawn often go together.

They had better living habits, too—a fact which might account for their physical superiority. They ate better-balanced meals and averaged 50 minutes more of sleep a day than other children. They had only half as many headaches, fewer hearing and vision defects, but were just as susceptible as the next child to contagious diseases. As they grew up, they maintained their physical advantage. They continued to enjoy better health than most people and they lived longer.

2. Character and personality

In character and personality, Terman's gifted youngsters were also above par. They rated higher than average in such desirable traits as truthfulness, conscientiousness, generosity, perseverance, dependability, and sympathy. Although conceit is a personality hazard for the gifted person, relatively few seem to become grandstand players.

When the average age of the group was 30, there were fewer cases of emotional disturbance than there would have been in an unselected group. And the emotionally disturbed had shown superior ability to recover.

Although Terman found that the intelligent person, both as a child and as an adult, is superior in physique, character, personality, and social adjustment, he is not as advanced in these respects as he is in mental traits.

3. School achievement

As you would expect, with very few exceptions, the 1,500 gifted youngsters did well in school and were happy there. Only one in a hundred was reported by parents as having a distinct dislike for school. Normally, they zipped through their schoolwork in about half the time allotted and earned places on the honor roll with their grades.

But they weren't equally good in all subjects. Their fortes were reading, language usage, arithmetic reasoning, science, and literature—the "thought" subjects. They were less outstanding in skills that require memory and drill, such as spelling, penmanship, mechanical arithmetic computations, and the facts of history and civics. Even in most of these subjects, however, they were well above average.

Nearly half had taught themselves to read before entering school. Reading remained the favorite pastime of most. Their tastes ran to serious and literary books—history, science, travel, poetry, and drama—rather than mystery stories or emotional fiction.

4. Marriage and job success

You may be wondering how the gifted fared in two things about which teen-agers do so much thinking: marriage and careers.

Apparently brains enhance the chances of marriage. At any rate, by 1945 when the gifted subjects ranged in age from 20 to 44, 84 per cent of both the men and the women had married. In the nation as a whole, the 1940 census showed that only 67 per cent of the men and 78 per cent of the women in that age bracket had married.

There was no question about the fact that brains have a high value in the job market. Whether vocational success was measured in terms of prestige or annual income, the gifted were on top. In most cases, early promise had culminated in high achievement. The percentage of men employed in professions—those jobs that are rated tops—was nine times as high as the over-all percentage in the state of California, where the study was conducted. The professions, the semiprofessions, and higher business occupations accounted for 80 per cent of the men whose careers Terman traced. Among the rank-and-file of male employees, only 18 per cent work their way to these high-ranking fields. In salary, the gifted were 70 per cent above average. During the depression, when 15 to 20 per cent of the men in California were unemployed, the gifted group was scarcely touched. Less than one per cent were out of work.

Because most of the women in Terman's study were not career-minded, but worked only while waiting to marry or in order to pad the family budget, Terman did not include them in his detailed employment study. However, he did find that 48 per cent were working full time and, of these, more than half were in professions—chiefly teaching. Although their earnings could not be compared with those of the men, they were well above average for women.

Although most of the group had not yet reached their full stride vocationally, these bright young men and women had already piled up an impressive list of achievements. They had published a total of 90 books and 1,500 articles and had been granted more than 100 patents.

There was no indication that any one of them would go down in history as another Shakespeare, Darwin, or da Vinci. After all, how many such all-time geniuses are there in a century in the whole world? But there was no question that many were making outstanding contributions to their times.

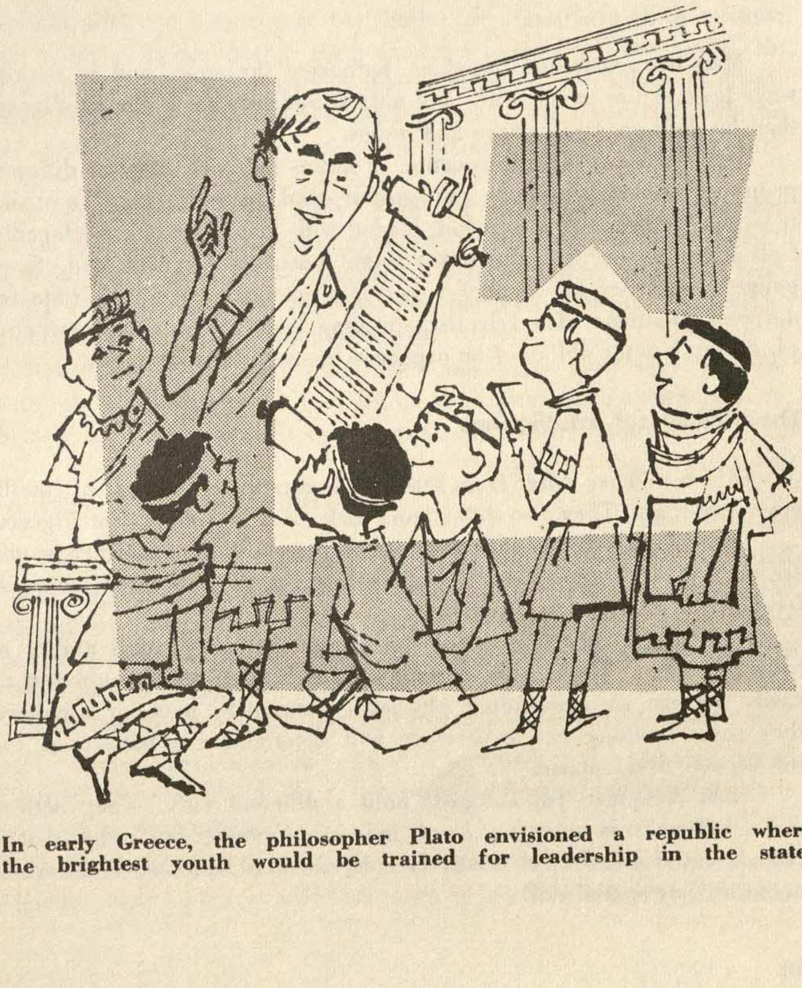
Cultivating your brain power

You've seen what gifted children are like and what happens to them when they grow up, as reported in the most detailed study ever made of people like you. You can see that on the whole, you're in luck. The odds are that you not only excel in mental ability, but in a lot of other fine qualities.

However, you'll need to watch out for one thing we mentioned earlier —the fact that your intellectual development will probably outrun your social and physical growth. That can cause problems. We'll discuss some of them in a later chapter. Another thing you must realize is that brains, untrained, are like a diamond in the rough. They must be cultivated or their value will be lost to you and to society.

Society is awakening to the fact that it needs all the skilled manpower and leadership it can muster. It needs brains like yours to maintain and advance its technological culture and its role in world affairs.

More than 2,300 years ago, when Greece was in its glory, the great philosopher Plato advocated searching out the brightest minds and training them for leadership in the state. Today a lot of people are beginning to realize he had a good idea.



In early Greece, the philosopher Plato envisioned a republic where the brightest youth would be trained for leadership in the state.

two

WHAT WE KNOW ABOUT INTELLIGENCE

Man has conquered the skies, harnassed the atom, and in various ways bent nature to his will. Yet man knows less about his intelligence than he does about airplanes and atoms.

Intelligence is difficult to define; it means different things to different people. To some, it means horse sense or good common sense. To others, it means the brain of a quiz kid, loaded with facts like an encyclopedia. Still others picture it as the ability to get a straight-A report card. Some gauge intelligence by whether a person's reactions are appropriate for different situations. The scientist, speaking from a biological viewpoint, would say it is the ability of an organism to adapt to environment.

Theories about intelligence

Gifted students differ from their classmates in the amount of intelligence they have. They also differ from each other in kinds of intelligence.

Psychologists do not see eye to eye on the question of whether people are born with different kinds of intellectual ability or develop their different abilities through experience.

A group of British psychologists holds that intellectual ability at birth is general. The newborn infant with high intelligence could just as easily become an outstanding physician, statesman, poet, or architect, they say. Training and experience will determine the pattern of his intellectual development.

Most American psychologists hold a different view. They believe that intelligence is never a general, indivisible quality, but rather that it is made up of a variety of relatively independent abilities, such as verbal, numerical, or spatial skills.

Although there is a basic difference in theory here, both agree that by the time a student reaches high school, his abilities have become specialized. No longer could he pursue any career with equal prospect of success.

Everyone has strengths and weaknesses

Although you may have a reputation for being "good in everything," you have your intellectual strengths and weaknesses. As we mentioned, intelligence can be subdivided into specific mental abilities. The high school student who scores equally high in all abilities—an all-around genius like Leonardo da Vinci—is extremely rare.

Take Tom and Sally. Both are bright high school sophomores, 14 years old, with equal general ability. Both have almost straight-A records. Tom, however, flashes through his geometry assignments like a comet. He has unusual ability to understand spatial relations. He solves problems almost before Sally has finished reading them. She comes up with the right answers too—at least most of the time—but it's a lot more work for her.

In English, it's another story. Tom gets good grades on his themes because they are free of grammatical errors and are clear and logical. But they tend to be prosaic and dull. Sally's themes, sparkling with original ideas and phrasing, are the ones the teacher chooses to read to the class. She has a real flair for words.

Although equally intelligent, Tom and Sally have very different mental abilities. If they are as smart as intelligence tests would indicate, they will capitalize on their assets in planning their futures.

The primary mental abilities

American psychologists led by L. L. Thurstone, who have pioneered in analyzing the different factors that comprise intelligence, have isolated basic skills which they call "primary mental abilities." Perhaps you have taken *SRA Primary Mental Abilities* tests and have been shown a profile of your mental skills.

Here are some of the basic abilities that have been isolated:

1. *Verbal comprehension*—the ability to understand ideas expressed in words. Because this ability is necessary in reading and listening, it is important in your education.

2. *Space perception*—ability to think in two or three dimensions, to imagine how an object will look when it has been rotated, and to see

the relation of an arrangement of objects. You use it in working jigsaw puzzles, and it's a must for work with blueprints.

3. *Reasoning*—ability to solve logical problems. Reasoning enables you to solve problems, foresee results, make plans, and adjust to changing situations. It becomes increasingly important the farther you go in school.

4. *Number skill*—ability to handle simple quantitative problems with speed and accuracy.

5. *Word-fluency*—facility in writing and talking. People who speak and write easily are high in this ability. It differs from verbal comprehension in that it refers to the ease with which you use the words you know. Verbal comprehension involves the number of words you know.

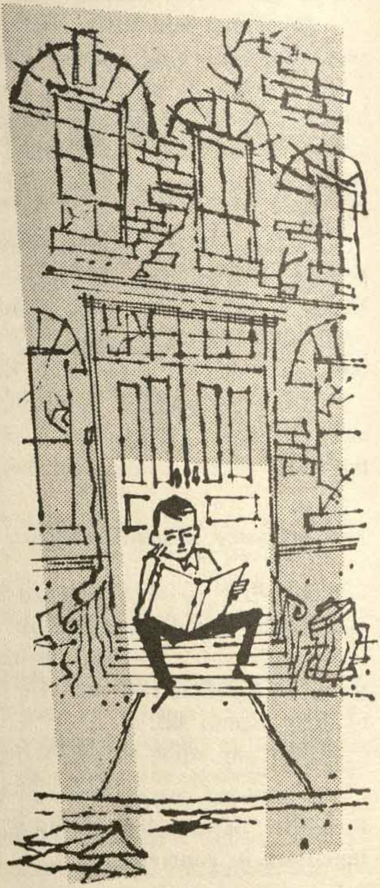
6. *Memory*—ability to recall past experience and to memorize verbal material. There are times when this seems to be one of the most convenient skills. It is certainly an asset in many situations.

7. *Perceptual speed*—ability to spot similarities and differences in detail quickly. This ability was very important when you were learning to read, for you had to be able to spot the differences between b's and d's, m's and n's.

High intelligence comes with various combinations of these qualities. Many bright youngsters are above average in all the primary mental abilities but they rank higher in some than in others. As you will see later, this can be an important clue in finding the job that best suits you.

Brains can be anywhere

You could easily start an argument about what intelligence is but



The gifted youth from a poor background may not realize his ability.

there is no controversy about *this* fact: It can crop out anywhere.

No nation, race, sex, or social group has a corner on brains. Genius can come from a shack on the wrong side of the tracks as well as from a mansion. Abraham Lincoln's rise from a log cabin to the White House is a prime example. The pages of history are full of stories of great men with great minds who came from humble, unpromising backgrounds and made significant contributions to mankind with all the odds against them. Intelligence quite often turns up where you least expect to find it. This is one reason schools are trying to identify gifted young people. Environment, or sometimes emotional problems, may prevent the gifted child from reaching his full intellectual growth and he himself may not realize his own abilities.

Nature vs. nurture

Why are some people more intelligent than others? The old theory was that heredity alone is responsible for differences in mental ability. Psychologists used to say you're either born with ability or you're not, and there isn't a thing you or anyone else can do about it. It was believed that your intellectual potential was fixed at birth and will remain as unalterable all your life as the color of your eyes.

Adding weight to the heredity theory is the fact that animals can be bred for intelligence. Through careful selection of ancestry, scientists have been able to develop a strain of bright white rats and stupid ones.

Maybe it's all a matter of genes with rats, but with people it seems to be different. There are many additional factors involved.

Today, most psychologists agree that mental ability is something you're born with. But, they add, your environment must also be favorable or your intelligence will be stunted like a flower planted in poor rocky soil.

The child with good potential intelligence who lives in a home where there are no books, no stimulating conversation and no encouragement to learn may never become as smart as he could. Even intelligence tests which are supposed to measure innate ability rather than acquired knowledge may not show his true potential.

Research seems to indicate that unless mental ability is stimulated, it deteriorates. A former Northwestern University professor, Dr. A. R. Gilliland, who specialized in intelligence tests for infants, found that a baby's social life has a significant effect on his later mental ability. If his intelligence is to develop to its full capacity, a baby needs lots of contact with people, with the physical world, and with toys.

Gilliland's findings are backed up by the investigations of others who have discovered that orphans increase their intelligence test scores when they are moved from orphanages to good foster homes. And children from impoverished rural areas frequently improve in intelligence when they move to cities.

Soldiers tested during World War II had significantly higher intelligence test scores than those tested in World War I. Although you might conclude from this that Americans are growing smarter, the improvement has usually been attributed to better environment—mainly more schooling—rather than to higher innate ability.

The viewpoint of modern psychology on the old nature-versus-nurture controversy might be summed up this way: You have to have the mental potential to start with. But whether it ever develops to anything near capacity will depend on environment, especially during early childhood. A restricted environment makes Jack a dull boy—no matter how good a brain he was born with.

Individuals differ in their intellectual development although most people develop at about the same rate. There are striking cases of precocity: Mozart, for example, wrote his first symphony at the age of eight; Einstein conceived the theory of relativity at 17. On the other hand, Winston Churchill and Robert Frost are examples of men whose great intellectual gifts developed late. Had they been judged by early school performance, neither would have been identified as outstanding.

Measuring intelligence

Though there are many gaps and guesses in man's knowledge of his own mental powers, he has developed techniques today for measuring intelligence or mental abilities.

Measuring intelligence has considerable practical value. It makes it possible to predict your chances for success in college and provides valuable clues to the kind of career that will best suit you.

In past attempts to probe the mysteries of intelligence, men have measured heads and weighed brains like sacks of potatoes. Aside from showing that some brains are bigger than others, these investigations netted little of value. Obviously, intelligence is too elusive to be weighed like a physical object. The big-brained whale is a stupid creature; the parakeet, with less than a thimbleful of brains, outsmarts him.

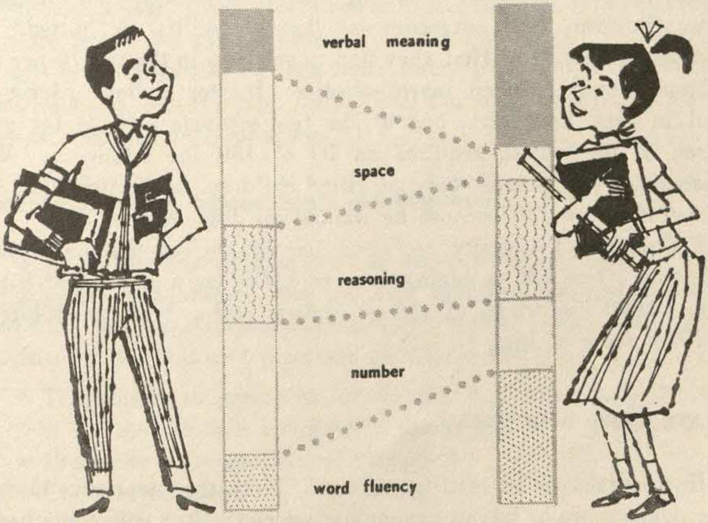
In 1905, two French psychologists, Alfred Binet and Theodore Simon, devised a yardstick for measuring intelligence. They constructed intelligence tests to determine a person's *mental age* by comparing his performance on tests with that of others.

Americans later revised the early intelligence tests of Binet and Simon. They also developed the IQ, short for "intelligence quotient," which compares an individual's mental age with his chronological, or actual age.

Other psychologists have developed new tests, some of which are quite ingenious. In one, a child's intelligence is tested merely by asking him to draw a man.

Although no psychologist, the great inventor Thomas Edison had his own intelligence test for young men who applied for work in his laboratory. He invited them to dinner and then observed whether they salted their food before tasting it. If the candidate did, he was disqualified. Edison felt that if a young man had the intelligence to be a good scientist, he would be curious about the world around him—and that would include being curious about the seasoning of his food. The inventor did not believe anyone who jumps to conclusions without investigating first is very smart!

An important modern development in testing is the discovery that general intelligence can be split into a handful of more specific mental abilities—the primary mental abilities we described earlier—and these can be measured separately. Knowing what kind of mental ability is your "long suit" can be especially helpful when you make a job decision.



Tom and Sally have the same general intelligence but different mental abilities. You can see why Tom excels in geometry, Sally in English.

IQ scores

The formula for figuring an IQ is a simple one: Mental age is divided by chronological age and multipled by 100. Mental age is determined by the level of problems a person can solve. For example, if Jack is 11 years old (11 is his chronological age) but solves the same kinds of problems as an average 15-year-old, he has a mental age of 15. Dividing 15 by his chronological age (11) and then multiplying by 100, we find that Jack's IQ is 136.

The average IQ is 100 but a range of 90 to 110 is usually considered average since about half the population have IQs between these scores.

General intelligence on the adult level must be estimated in a somewhat different way. People mature intellectually just as they do physically, and by the time a person is about 15 his intellectual development is almost complete. This doesn't mean he's learned all he's capable of—only that his capacity to learn has fully developed. The formula we have just described, therefore, is not used. Instead, adult intelligence is generally figured by comparing an individual's test score with others of his own age group.

How high does an IQ need to be before the individual is considered gifted? The boundary line is arbitrary and has been set anywhere between 110 and 140 or even higher. A score above 110 is certainly superior and puts the scorer in the top quarter of his age group in mental ability. However, most educators say that to qualify as "gifted," you must score at least 120. That, they figure, puts you in the top 10 per cent.

Some would be even more selective. Hunter College Elementary School in New York City, one of the few separate schools for gifted children in the nation, requires an IQ of 130 for admission. When Terman made his famous study of gifted children, he limited it to those who scored above 140 because he wanted the top one per cent.

A Columbia University professor has figured out that one child in 100 has an IQ of 136 or higher; one in 1,000 has a 150 IQ or higher; one in 10,000 has an IQ of 160 or higher; and only three children in 10 million score as high as 182.

Can we depend on tests?

How reliable is an intelligence test? Well, that depends. Certainly a few points more or less in anyone's score make little difference because there are possible inaccuracies in the test and because people do better on the test at one time than they do at another. Maybe you had a headache or were nervous or preoccupied with other thoughts when you were tested. If so, your score probably was lower than it should have been.

The unquestioning faith that educators used to place in IQ tests has been somewhat shaken in recent years. For one thing, psychologists have discovered that most standard tests are stacked in favor of the child from a middle- or high-income home. The vocabulary and examples used on the tests are more familiar to him because he has usually been more places and seen more things—and therefore has learned more about the world around him—than the child who comes from an underprivileged environment.

Although the tests are supposed to measure native capacity rather than acquired knowledge or achievement, it has proved almost impossible to separate the two. The only measure psychologists have of how much a child can learn is how much he has learned in a certain amount of time as compared with others his age. During the war, the Army faced the difficult task of evaluating the intelligence of some illiterates. Finally a nonverbal test was developed, and when it was administered, Uncle Sam discovered a few brilliant minds among soldiers who had never learned to read or write. On a standard intelligence test, they would have looked like morons.

Another thing that has modified the importance attached to IQ scores has been the discovery that they can vary. In fact, the same individual given the same test on different days will probably change his score several points. And if he were given a different kind of intelligence test, his score might be quite different. The IQ test is still the best single measure of intelligence, but educators today prefer to give several different tests and then compare results with the views of teachers who have observed a child's daily progress.

What tests show about high intelligence

What do intelligence tests show us about people of superior ability? Psychologists have studied children with superior intelligence and have noted that they have certain characteristic mental traits. Three qualities are often singled out as indications of a good mind:

- The ability to generalize or, to put it another way, the ability to see the common elements in things and draw deductions
- Creativity or originality of viewpoint
- Critical judgment

Psychologists have found that people with superior intelligence also have the following traits:

- A longer attention span
- More sustained curiosity
- Verbal skill and superior vocabulary
- Resourcefulness
- Capacity for self-criticism
- More than average enthusiasm for things in general
- An objective viewpoint, without bias or emotional distortion
- Ability to learn rapidly
- Ability to retain what is learned
- Ability to organize material

Of course, not every person of superior ability has these qualities in the same degree. You'll want to evaluate your own abilities carefully to see how they can help you in planning your career and future education.

Other keys to success

We've tried to give you some idea of the meaning of intelligence and what different mental abilities make up your general intelligence. Brains like yours are a wonderful thing—but only if you use them. A high IQ is no passport to success, either in a job or in school. On the road to success there are many casualties, even among the gifted.

Why is it that some succeed where others, equally gifted, fail? Probably the most important reason is the desire to succeed. It isn't enough just to have intelligence. It's almost equally important to have the drive and motivation to make something of that intelligence.

Other ingredients of success are emotional stability and good all-around social adjustment. Sometimes intelligence just doesn't show up if a person has emotional problems or is not adjusted socially.

Opportunity—both for higher education and for employment—is also part of the story. You might think opportunity is another name for Lady Luck. Certainly the son of a corporation president has a better chance at lucky breaks—vocationally speaking—than does the average young man or woman. But in this day of scholarships and of shortages of skilled manpower, opportunity is knocking loudly on the door for all bright young people.

three

CAREERS THAT TAKE BRAINS

The question in the minds of most teen-agers is: "What should I do with my future?"

You probably have already outgrown a whole sequence of ambitions. Like the toys of childhood, you have laid aside dreams of being a cowboy, movie star, or uranium prospector.

You're serious now, ready to think in mature, realistic terms. Days of decision are at hand. The choices you make now can shape your future.

This is a time for stock-taking, for a thoughtful review of your strengths and weaknesses and their bearing on your future. Let's begin with the distinguishing characteristic of all of you for whom this booklet is written—your superior intelligence. What are the implications of having brains? What difference does it make for your future?

The answer rests on two basic facts:

1. Those with brains are able to succeed in the best jobs—best in terms of personal satisfactions, financial rewards, and social standing.

2. For these jobs, a college education is necessary. College has become increasingly necessary in recent years as we shall see in the next chapter. Its importance will emerge as we consider the long-range goals of your career.

What kind of job?

There are some 30,000 different ways to earn a living in the United States. You won't want to pick one out of a hat or wait to see which one you'll drift into. Many people do just that—and the result is the world is full of clock-watchers who are unhappy with their jobs and can't wait for the work day to end so they can start living. People who have made good career choices, on the other hand, often regard their work as a hobby and get a lot of fun out of it.

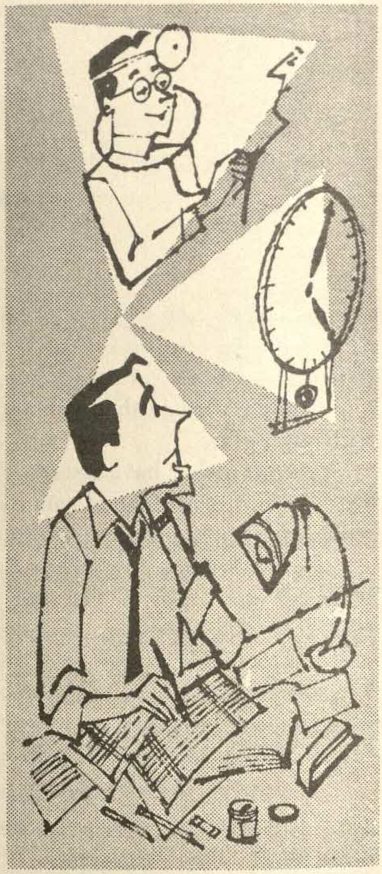
You'll probably be working for a half century or longer. You'll give the best years of your life to a job. Surely something that's going to occupy such a large chunk of your lifetime deserves careful consideration.

You should choose a career commensurate with your ability for two reasons. You will find more personal satisfaction in doing something that challenges your best efforts. And only then will you be making the contribution that society needs and expects of its gifted citizens.

Since relatively few people have your intelligence, society needs your talents to handle demanding tasks that are beyond the capacity of most workers. If you don't do these jobs, they will not get done as well.

In general, careers for which you are best suited have these characteristics:

1. They usually require specialists who have mastered a large body of theoretical or systematic knowledge. This takes considerable time to acquire.



Job dissatisfaction is often the result of poor vocational planning.

2. They require reasoning, judgment, and creative thinking. Work at this level cannot be routine.

3. They usually pay better than average and involve higher prestige.

It's your career

The decision should be your own. You'll want to weigh all the advice you can get, but it's going to be your lifework, and you may be sadly misled if you follow someone else's wishes. Before deciding to follow in your father's footsteps, you should double-check to see if you are suited in abilities and temperament for his type of work. If your parents' ambition for you happens to coincide with your own desires and skills, the choice will be a happy one all-around. But many a sad young person has had to backtrack and start over in another field because he accepted another's wishes as his own.

Although career planning should start early in high school, you shouldn't expect to draft a permanent blueprint of your entire future. The years will bring changes in you and your interests, in the external circumstances of your life, and in the world of work. Right now, for example, automation is sweeping across the industrial scene creating revolutionary changes in some occupations. For these reasons, your plans should be flexible, though not flabby.

Your job during high school years is to survey the prospects, to discover what types of work you are best suited for, and to try to narrow down your choice to a certain field, for instance science or business. This will enable you to take the next step toward your goal by choosing the right high school courses and planning for your future education. Obviously the would-be scientist needs different training than the future violinist or diplomat. In high school you need to take the preliminary courses that lead to your chosen career. That's why your career planning should begin now.

Looking over the field

Your field is already narrowed by the fact that you have superior intelligence. It would be wasted if you were to become an unskilled or semiskilled worker. The vast majority of jobs take only average mentality. You are needed for those that require more than that.

The jobs where you will use your potential best fall into three categories:

1. The professions, such as medicine, law, engineering, teaching, the ministry, editing. There are some 24 recognized professions and together with the semiprofessions, they employ about 9 per cent of the labor force. They often require not only a bachelor's degree, but graduate training as well.

2. Semiprofessional jobs, such as drafting, laboratory work, photography, physical therapy. These jobs are often performed under the direction of a person with professional status. Advanced training is usually needed, though not as much as for the professions.

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3. Managerial positions, such as those filled by purchasing agents, executives, credit managers, politicians, public administrators and buyers. These positions make up about 9 per cent of the total labor force. Since a manager directs the work of others, he must be able to plan and supervise efficiently and know how to handle employees. Although educational requirements vary, competition is stiff for those who don't have college degrees.

Although only 18 per cent of all workers are employed in these occupational groups, the percentage is increasing. The number of people in professional and managerial positions is growing twice as fast as the labor force as a whole.

That gives you a general idea of the kind of job to aim for. In many cases, especially in the managerial positions—you can't expect to step into the job immediately, even with a college degree. Unless your father is the company president, you'll still have to prove your worth in a lower rank and stop on at least some of the rungs of the ladder to success.

The first step in good career planning is self-analysis. What are your abilities? What are your interests? What do you want from a job?

In measuring yourself for a career, the tests of primary mental abilities we talked about in the last chapter are a valuable guide. If you have taken these tests or other aptitude tests (as distinguished from general intelligence tests), you have a good starting point. Your counselor or teacher can explain strengths and weaknesses revealed by these tests.

Some jobs take more of one skill than another. For example, here are five basic mental abilities we discussed in the last chapter and some jobs where each is needed:

1. Verbal meaning—teachers, writers, scientists, executives, librarians.

2. Space perception—engineers, architects, artists, designers.

3. Reasoning—doctors, lawyers, teachers, statesmen. In fact, all top-level jobs take a high degree of this ability.

4. Number skill—accountants, statisticians.

5. Word-fluency—actors, reporters, announcers, publicity and advertising workers.

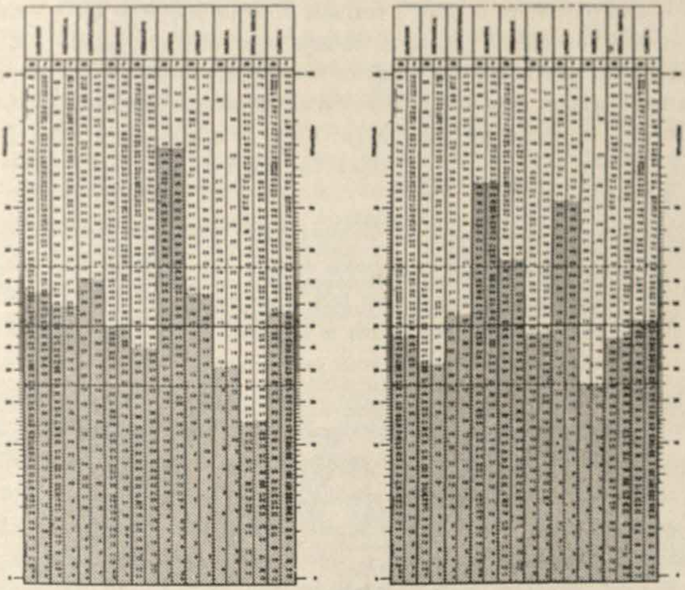
Discovering your interests

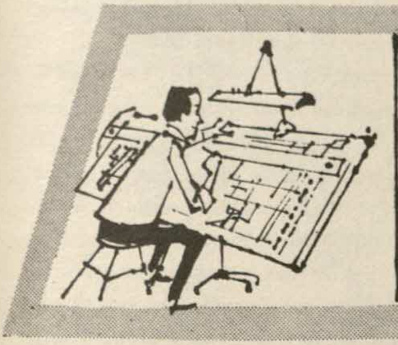
Your interests are almost as important as your ability in planning for a career. What do you really want to do, more than anything else? What would you work hardest for? You remember the old fable of the tortoise and the hare? Though built for speed, the hare was still overtaken by the plodding, determined tortoise, who didn't have half the native ability for winning a race.

Even if the career that you prefer is not in the field where you have shown the highest aptitude on tests, it still could be the right job for you if your aptitude is reasonably high in the area.

If your aptitudes seem to point in one direction and your interests pull you in another, you must consider both very carefully. It would be

PROFILES FOR THE KUDER PREFERENCE RECORD





His interests match those of architects and artists.

Her interests match those of scientific writers and editors.

advisable to discuss the problem with a vocational counselor.

A satisfactory career must be built around interests. But you must be sure that you really know your interests. You can't be sure that you aren't interested in anything until you've had some experience with it.

It is important to distinguish between your genuine interests and prejudices that you may have developed from your feelings for a certain teacher or course. Students sometimes think they dislike math or science, only to discover that they actually like it when they take another course with a different teacher who has a different approach.

It is also important to take a realistic view of jobs you are considering. Students sometimes glamorize certain occupations, especially those associated with television, the stage, or newspaper work. To be sure you have a level-headed view of these so-called glamour jobs and just what they involve, it would be wise to get some first-hand experience in a summer job. For example, if you think you want to be a reporter, try to land a job as a copyboy.

There are two good ways to discover your true interests. One is to take courses in as many different fields as you can, even if you suspect you won't like them. (How can you tell until you've tried?) The other is to take an interest inventory which is designed to reveal your pattern of interests. You can then compare your own interests with those of people in various occupations.

One well-known inventory developed by G. Frederic Kuder divides interests into 10 major areas: outdoor, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical.

The relationship between these interest areas and many jobs is obvious. Literary interest, for example, is needed by editors, English teachers, reporters, and librarians. Scientific interests go with engineers and chemists. Some jobs combine more than one interest; psychiatry and nursing, for example, need both scientific and social service interests.

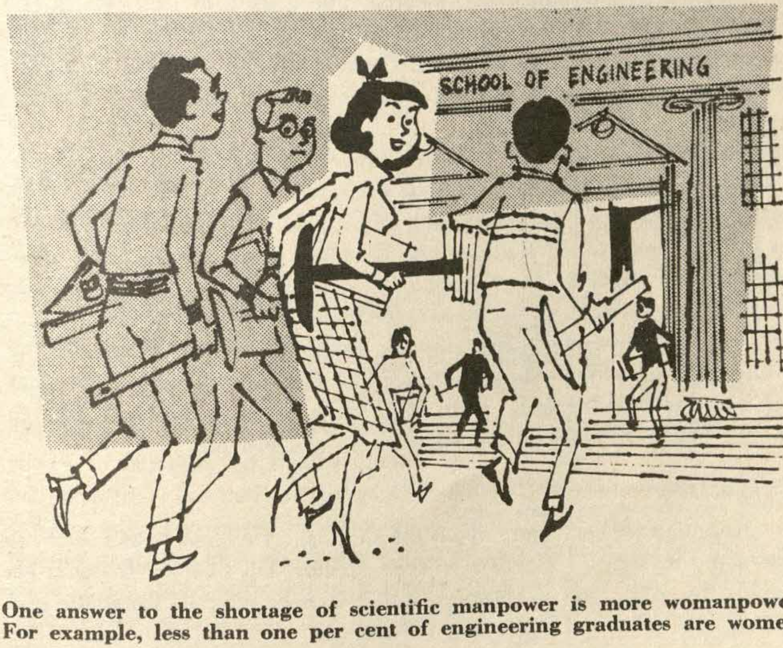
Another well-known interest inventory, developed by Edward K. Strong, Jr., reveals whether your interests match those of successful people in about 40 different occupations. Terman said he believed that up to 20 per cent of his 1,500 gifted subjects would have made better career choices had they taken this interest inventory as high school seniors. When they took the inventory as adults, he found that half of those who had been least successful vocationally were weak in the interests that go with success in their fields. He found another thing, too—more than two thirds of those who had not succeeded had drifted into their jobs without any definite planning.

If your school does not give an interest inventory, you might try to rate yourself in each interest area. Ask your friends and teachers if they would agree with your self-evaluation.

Exploring the job market

Besides making a cold appraisal of your own abilities and interests, you also need to have reliable, up-to-date information about the job market. One important consideration for the career-planner is: What are the growing occupational fields? Where are your abilities most needed? It's true that the person who is a real standout can make his way in any field, no matter how crowded. But the picking is better in some areas. At least you should know where the shortages exist.

In January, 1956, jobs listed by the United States Department of Labor as "critical occupations" because of manpower shortages included: professional engineers; clinical psychologists; persons with master's or doctor's degrees in chemistry, mathematics, microbiology, physiology, physics, pharmacology and parasitology; teachers of math and science; geologists; geophysicists; and professional nurses. Three fields in which the shortage of trained men and women is most alarming are engineering, science, and teaching.



One answer to the shortage of scientific manpower is more womanpower. For example, less than one per cent of engineering graduates are women.

1. Engineering

America recently woke up with a start to discover that Russia is training about twice as many engineers every year as we are. Our experts say there is serious danger to America's national security and technological future unless more bright girls and boys choose engineering careers. Yes, the welcome mat is out for girls too. There are some who say the only answer to the manpower shortage in engineering is more womanpower.

The Bureau of Labor Statistics estimates that at least 30,000 additional engineers are needed each year by industry to fill new jobs and replace employees who retire. Besides this, the military services are seeking many engineers. Yet in 1955, only 22,000 engineers were graduated from all the nation's colleges and universities.

Facts like that have made the engineering student the most popular man on campus with industry talent scouts who swarm to universities every spring to interview prospective employees. As a result of employers' bidding for the services of promising graduates, salaries are good.

2. Science

Like engineers, budding young scientists are signed up by industry before the ink is dry on their diplomas. Physicists and chemists especially are sought after for industrial research. The growth of this field is fantastic. In 1940, industry and government spent $345 million for scientific research. During the next 13 years, the sum shot up to $3½ billion—a tenfold increase. No wonder there is a manpower bottleneck in scientific research.

So you see, if your bent is for science and engineering, opportunity is knocking. But you must start your preparation early by taking all the math and science you can get in high school. Math is especially important, for college courses are built on the foundation you get in high school math. When students have trouble making the grade in engineering schools, the most common cause is inadequate background in mathematics. To keep the doors open for a possible career in science or engineering, you should take at least three solid years of high school math—not counting "essential" or "general" math. Your program should include algebra, geometry, and as much advanced work as you can get.

3. Teaching

Although we hear more about the shortage of engineers and scientists today, the scarcity of teachers is even greater. Up to now, the shortage has hit the grade schools hardest, but it is beginning to reach the high schools and soon will move into the colleges.

America needs about 160,000 additional teachers every year. And while enrollments continue to increase, supply falls about 60,000 short of demand every year. With supply and demand so much out of balance, many communities are trying to make teaching more attractive by raising salaries. Big cities and their suburbs usually pay best.

Although teaching has been traditionally a woman's field, men are given a warm welcome. Their numbers are growing, especially in high school teaching and school administration.

Other fields that take brains

Other professions are also open to bright young people, although their need for more trained manpower is not so great as the three we've mentioned. Here are some other fields you'll want to consider.

1. Medicine

The medical profession rewards its members generously both in income and prestige and is a natural for the intelligent student. This is one of the most demanding of careers. Only a top-ranking student can gain admission to medical schools in the first place, and nothing less than a brilliant mind is needed for the life-and-death decisions a doctor must make.

Although more doctors are needed to meet the public demand for better health services, the number won't grow until medical schools expand. This may happen shortly under a foundation grant program. The President's Commission on Health Needs of the Nation has estimated that by 1960, America will need 22,000 more doctors than the present medical schools can train to serve the nation adequately. Other estimates have placed the need as high as 51,000. This may explain why doctors are the highest paid of all professional work-

Trained nurses have taken over many duties once performed by doctors.

ers. In 1951, the average yearly income of a general practitioner was $14,098. Specialists averaged $17,112.

Sometimes students who can't gain admission to medical schools because of the intense competition or who feel they cannot afford the lengthy training needed to become doctors, switch to related fields such as dentistry, pharmacy, or physical therapy.

Girls usually find it very difficult to gain admission to a medical school and often turn to professional nursing. This is another occupation where there are far more jobs than qualified applicants. Although still underpaid, professional nursing is becoming more appealing to bright young women because graduate nurses today have taken over many of the functions formerly performed by doctors. The nonprofessional duties which trained nurses used to perform are now done by practical nurses or nurses aides under the direction of graduate nurses. The National Security Resources Board has estimated that by 1960 the nation will need 140,000 nurses with B.A. degrees—five times as many as it is likely to have.

2. Law

Law, the profession that most closely rivals medicine in prestige and appeal, is fairly well stocked with talent today. Some even regard it as an overcrowded field. Law training, however, is a fine background for many other occupations, especially those in business or in government service. About one fourth of all law graduates do not practice law, but go into other lines where their law training is an asset.

3. Business

Business offers innumerable possibilities for the youth with intelligence and ambition. As business has grown increasingly complex in recent years, it has employed more college graduates. Many are graduates of business administration schools, but others are straight liberal arts graduates. An aptitude for human relations, leadership, and initiative counts heavily for success in business.

4. Government

In reviewing career opportunities, don't overlook the biggest employer in America—Uncle Sam. More than five million men and women are working in federal, state, and local government jobs. For bright candidates, there are possibilities in the foreign service and in research in a wide variety of fields. There is also a growing demand for experts in the language and culture of foreign countries.

We have indicated a few of the shortage areas, where employers are beating the bushes for trained manpower. In some cases the shortage is not one of just quantity, but of quality as well. It is impossible in a chapter to give a complete picture of the vast number of career opportunities before you. If, after a careful appraisal of your interests and abilities, you believe you have what it takes to succeed in one of these wide-open fields, it would be well to concentrate your investigations in that direction.

Reading about occupations and talking with people who are employed in the field are excellent ways to get information. Your counselor or librarian can help you with this information. Perhaps you can supplement this with first-hand experience during the summer in a job that puts you close to the type of work you are considering.

You also can relate your extracurricular and leisure-time activities to your career interests. If science appeals to you, for example, you can enter science fairs and contests, or join a science club. If you think you want to teach, perhaps you can join a chapter of Future Teachers of America.

four

PLANNING YOUR EDUCATION

As Sherlock Holmes would say, "It's elementary, my dear Watson."

Since you have a good mind and the future job for you is one in which you'll use your head, you need good preparation for it.

You probably will agree readily enough with that logical deduction. Now your big question is: What training do I need?

To make the most of your brains, you must give them the best possible training. It would be tragic for someone with your intelligence to drop out before you finished high school. Yet many gifted teen-agers do just that. When it happens, both the individual and society are the losers. In the complex, highly competitive business world of today, the person who lacks a high school diploma has little chance to get to first base.

College and job success

For anyone with intelligence, high school should be only a stepping stone to college. If you hope to live up to your full potentialities, a college education is a must, not a luxury.

Of course, if you have decided on an occupation which requires more than a high school education, you are already planning for college. If you are uncertain about your career, however, you'll want to consider the values of a college education.

Let's dwell a moment on the relationship between college training and careers. Today a college degree is like a union card in the top-ranking jobs that you are capable of filling. It has become so commonplace that the person who doesn't have a B.A. or B.S. is handicapped.

Certainly there are exceptions. You probably know people who have made good without ever setting foot on campus. But such success stories are getting scarcer all the time because jobs are demanding more complex skills and because more and more Americans are going to college.

In 1900, only four per cent of the youths between the ages of 18 and 21 were in college. Today, more than 30 per cent of our young people start to college. So you see, the competition for the student who quits with a high school diploma is getting tougher all the time.

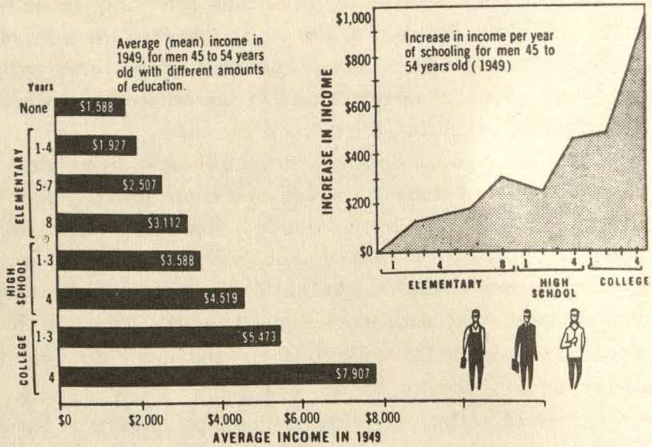
Besides giving you a distinct vocational advantage that can be measured in dollars and cents, a college education imparts other lifelong values. It can make you a better-rounded, better-informed, and hence more interesting person. In college, you will acquire both a fund of knowledge and the intellectual habits that distinguish the educated person. Rarely does an individual acquire by himself the trained mind that comes from formal education at the college level. And don't discount the personal satisfaction of learning for its own sake.

These values of college training are just as important for girls as for boys. A woman who has graduated from college can command a far better job and better salary than the noncollege woman. If she marries, her education isn't wasted. In countless ways, it will make her family life richer. Besides, more and more women are combining marriage with a career. Some 30 per cent of all married women are also holding down jobs. That is twice as many as in 1940.

The pages of *Who's Who in America* contain good evidence of the close relationship between college and success. Of the men and women whose achievements are outstanding enough for them to be listed, 85 per cent are college grads. Nearly all the rest have had at least some college work.

When Terman checked up on his 1,500 gifted children to see what had happened to them as adults, he found that most had been successful and some had even won international fame. However, others held only semiskilled jobs. Comparing the most successful with the least successful, Terman found a striking difference in the amount of education of the two groups. Ninety per cent of those in the most successful category had graduated from college, but only 37 per cent of the lowest group had done so.

One more proof of the relationship between college and job success was found in a 1954 survey. It showed that three fourths of the men in top management positions in the nation's 100 largest nonfinancial corporations are college graduates.



The 1950 Census shows that men with more education have larger incomes.

Education and income

Statistics show that a college degree has a cold cash value. The 1950 Census reveals that each additional year of schooling increases one's earning power, and graduation—both from high school and from college—has a bonus value. College graduates in the group studied averaged $2,400 more a year than those who had started to college but had not graduated. It's been estimated that the average college graduate earns $100,000 more during his lifetime than the man whose education stops with high school.

When *Time* magazine recently surveyed some 9,000 college graduates of all ages from all kinds of colleges, it found that their median income was double that of American men in general. What's more, as the years rolled by, the graduates pulled further ahead. Although the earning power of noncollege men had declined after they were in their mid-forties, that of college graduates continued to increase with age.

So from a purely mercenary viewpoint it pays to go to college. An investment in higher education certainly increases your chances for financial success and prestige—though of course it won't guarantee them. It will still be up to you to win success by your own performance.

Financing your education

For some of you, going to college may be the natural course of events because your family expects it. But if college attendance is not in the family tradition, it may look as if it just isn't in the cards for you to go. If this is the case, it is especially important to consider all the pros and cons of college very seriously before ruling out the possibility.

Maybe you're objecting: "But I can't afford to go."

If you're bright, there are ways and means of attending college without a bankroll.

Or possibly you think: "I've been dependent long enough. I want a job now so I can stand on my own two feet."

That's a normal reaction, but it's shortsighted. Sure you could be drawing a salary for a few years while your more ambitious classmates went on studying. But your advantage would soon end. As we've pointed out, a college graduate has a lifetime advantage.

Perhaps you're convinced you'd like to go to college. But you aren't sure you can swing it financially. It's true that expenses have climbed so high that a college education seems out of the grasp of many individuals. To attend college and live on campus costs from $1,200 to $3,000 a year. Even in state universities, expenses for resident students average about $1,000 a year. Many families just don't have that kind of money.

You needn't give up in despair. There are still these possibilities:

1. You can win a scholarship.

2. You can work your way, or at least part of your way, through college.

3. You can borrow from a student loan fund.

4. You can minimize costs by living at home and commuting to a nearby school if there is one.

Scholarship aid

Scholarship opportunities are improving for the bright high school graduate. You should investigate possibilities thoroughly with the help of a counselor or teacher.

In 1955, the largest independent college scholarship program in history was launched under the name of the National Merit Scholarship Corporation with headquarters in Evanston, Illinois. Starting with initial funds of $20,500,000 it is a clearing house for corporations interested in awarding scholarships to America's talented youth.

All public, private, and church-supported high schools are invited to participate each year by nominating bright, promising seniors to compete for scholarships. Those who score highest in a series of tests and who rank high in school records and character recommendations are given four-year scholarships for any accredited college. The amount of the grant depends on the student's need. If he can afford college without outside help, he receives a token award of $100 a year. If college would be out of the question without financial assistance, he may get the full cost of a four-year education, including board and room as well as tuition.

The scholarship shopper has many other promising prospects. As tuition has climbed, most colleges have greatly increased the number of scholarships they provide for worthy students. Industries, labor unions, national groups, and individuals also provide scholarships.

You may be asking, "But where do I *start* looking?" Explain your need for financial aid to your school counselor or a teacher who will help in your search. Perhaps you may be nominated for a national scholarship. Investigate the chances for scholarship aid from colleges to which you are applying. Find out what financial aid is given by local industries, professional groups, alumni associations, service clubs, and state departments of education. There may be many opportunities right in your home town. You will find other sources in the "For more information" list at the end of this booklet.

Earning your way

Of course, scholarships aren't always to be had for the asking. And often they don't cover the whole cost of going to college. What then?

The next step is to explore opportunities for part-time work. It is the rule rather than the exception for students to earn part of their college expenses. Sometimes they work only during summers; often they combine work and classes during the school year.

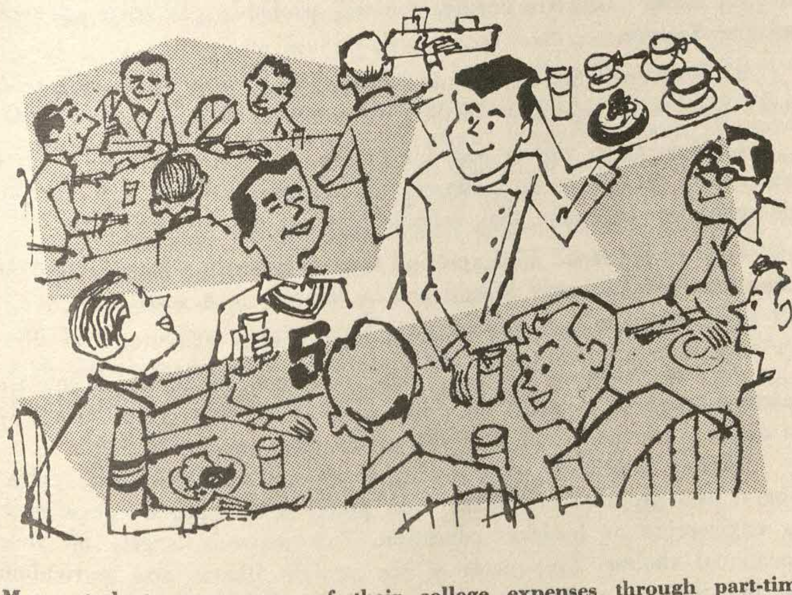
Campus jobs are usually easy to find. Nearly all colleges have placement bureaus where you can register for part-time work in all sorts of fields. A national campus opinion poll showed that the favorite job with students is waiting on tables. It provides good returns and short hours. Other popular jobs are working in the library or in offices.

One thing to watch out for is not to be overly ambitious and get saddled with so much work that you won't have time to study or to get in on some of the fun of college life. If your grades or health suffer from overwork, it would probably be wiser to apply for a student loan.

Another possible way to finance a college education is to work for a few years between high school and college. Veterans who went to college under the GI bill proved that a period of mature responsibility between high school and college can make better students. The only danger is that you will be tempted to go on working. It's hard to give up a pay check when you become used to one. It also might be harder to get back into the habit of studying and harder to adjust to classes where the average student is younger than you are. If you do decide to work between high school and college, it would be wise to keep in practice by taking night school courses.

Student loans

About two thirds of the nation's colleges and universities provide another way to finance an education—through student loan funds. Nationally, there is more than $42 million in such funds. A recent survey showed that about half of this amount is never used. Understandably,



Many students earn some of their college expenses through part-time work. Waiting on tables is a popular job on most college campuses.

most students are a bit reluctant to take on a debt so early in life. If your choice is between borrowing money and missing out on college, however, you should certainly give careful consideration to borrowing. The average loan carries two per cent interest while the student is in college and four per cent after graduation. When you realize that a college education will enhance your earning power, it may be good business judgment to borrow in order to get a start.

Choosing your college

Assuming that you're convinced you *should* go to college and you *can* go to college, the next question is, what kind of a college?

There are about 2,000 different colleges and universities in America. They range from small liberal arts schools to large universities. They include teachers colleges, junior colleges, engineering schools, and other specialized schools.

Your choice may be limited by geography. But if you are able to survey the field, here are some things to take into consideration:

1. Does the school offer the kind of training you want? Obviously, if you want to be an engineer, you should look first at good engineering schools and then for other characteristics you would like in a college. If your career plans are unsure, you will probably pay more attention to other features.

2. How does the school rank scholastically? Is it properly accredited? What is its reputation in the field you plan to pursue?

3. How much will it cost for tuition and living expenses? State universities, public junior colleges, and teachers colleges will be considerably less expensive than schools that are not tax-supported.

4. How big is it? Will you find the transition to a large, relatively impersonal school hard? Would you be happier in a small school?

5. Is it coeducational? Does it have church affiliations?

It's a good idea to study the catalogs of colleges in which you are interested and, if possible, to visit the campus. That is the best way to discover whether you'll find the environment to your liking.

Another question to settle is whether you are interested in the typical liberal arts program or whether you prefer a specialized course such as engineering or business education. This depends largely on your vocational choices. Proponents of the straight liberal arts curriculum say that this course makes a well-rounded person who can adjust to any job and is prepared for the nonvocational aspects of life.

The *Time* magazine survey of graduates mentioned earlier went into this question. It found that many students who took the liberal arts program wished they had received more specialized training. Often they had trouble getting good jobs and many were not engaged in the kind of work they had anticipated while in college.

Although more of those who had gone to specialized schools were satisfied with their education, some felt they had missed a lot by not having more general courses. Many schools, including technical ones, try to give graduates both a good general education and specialized training. This seems to be a happy combination.

High school planning is important

College may look a long way off to the high school freshman, but it isn't too early to start preparing. Admission to most colleges and universities calls for certain background courses and a certain grade average.

Bright students sometimes avoid taking the "hard" subjects in high school, such as mathematics or a foreign language. You must be careful not to close the doors in this way to things you may want to do. You will need a fundamental background in these subjects for college.

Students who hope to go to college are advised to include in their high school program four years of English, two to four years of traditional mathematics (not general or essential math), three to four years of a foreign language, and more social studies than the average student. Other courses that will come in handy in college, though they won't be necessary for admission, are typing and public speaking. And, of course, anyone who is considering a career in science or engineering will want to take all the math that his high school offers.

It's important for the high school student who is preparing for college to remember that grades are important, especially if you hope to win a scholarship. As college enrollments rise, some schools feel it will be necessary to raise admission standards. The chances are that high school grades and records will be considered even more carefully by the better colleges and universities.

five

LIVING WITH YOURSELF AND OTHERS

You've probably had days when you've wondered if it pays to be a "brain." It may seem as if life would be a lot simpler and happier if you were just an average student, a "regular Joe."

Bright students are not alone in having problems. During the teens problems have a way of ganging up on everyone. You and your classmates are facing some of the normal problems of growing up—developing confidence in yourself and your own decisions, handling family conflicts that may arise as you reach out for more independence, establishing satisfactory relationships with the other sex, finding a philosophy of life, and overcoming feelings of inferiority and aloneness. Every teen-ager seems to feel "all mixed up" about things at times.

But added to the problems adolescents have in common, the bright student often has some problems that are peculiarly his own.

Developing your social rating

Perhaps you're unhappy because you aren't as popular as Jane, who hasn't half your intelligence. You haven't a date for the prom. You may feel your classmates don't understand you, or you're bored with them. Maybe you weren't invited to a recent party; you think your social rating has hit a new low.

Like other teen-agers, you want people to like you. Perhaps it's what you want most of all. But you may find that establishing good give-and-take relationships and fitting into social groups is tougher than an algebra assignment. It is nevertheless especially important for one with your intellectual gifts, for without it you may never live up to your potentiality. As the seventeenth-century poet John Donne wrote:

"No man is an island." We are all part of the living stream of humanity. Developing skill in human relationships is one of life's basic tasks.

Brains make a difference

Why do bright young people like you sometimes have difficulty getting along with others? The answer is simply this: Because you're different.

High school is an age when conformity is greatly prized. Teen-agers dress alike; if blue jeans and flapping shirttails are the style, they become virtually a school uniform. Teens cut their hair the same way—pony tail, crewcut, or whatever is in fashion. They even speak a language—or slanguage—all their own. Individuality makes them uncomfortable, insecure.

But a bright student is set apart by his intelligence. Often he is less of a conformist. He may violate the code of dress. He seems to speak differently because his vocabulary is more developed. His interests and activities are different, too—in some ways more mature, in other ways less so.

Usually, superior students outgrow comics and horse-opera movies while others their age still think they're great. The high-IQ teen-ager enjoys biographies or travel books which his age-mates cannot fathom. It's easy for him to feel set apart and alone. A person wants friends with similar interests—and sometimes the bright student can't seem to find them.

If he has been double promoted and is therefore younger than the rest of his class, another difference may arise. The other boys in the

Bright teen-agers may not place much value on group conformity.

class have already discovered that girls are pretty nice. He may not be able to share their enthusiasm. He feels left out when the rest of the gang talk about dances and dates.

You can see how differences like these can create a two-way conflict: The bright student may be disappointed with his classmates because they don't share his interests and activities, and they may resent the fact that he is different. Although they would never admit it, their resentment may also contain a little jealousy for the bright student's superior abilities.

Sometimes the bright student—and it could be you—makes matters worse by being unduly bossy or critical. He often likes to argue. And knowing how things should be done, he doesn't hesitate to hand out free advice where it isn't wanted. He may even have a know-it-all air that satisfies his ego but plunges his popularity down to absolute zero.

But intellectual snobbery is a rare problem with bright teen-agers. Most of them are able to work out good human relationships without undue difficulty, though the higher their IQ, the greater their problem is likely to be. Terman found that children who had IQs above 170 often had serious adjustment problems because they were so far above the average in ability.

Tackling social problems

What's the smart way to handle problems like these? Certainly *not* by trying to conceal the fact that you have brains or by withdrawing into solitude. These are common reactions of bright teen-agers who are hurt because they have not been accepted by their classmates.

The first thing to do is to examine your own attitudes and feelings. Are you—maybe in self-defense—isolating yourself from others? To be accepted, you also must accept others, respecting them for what they are. Remember that everyone is a unique individual, worthy of your attention and respect.

Here are some constructive steps you can take to improve your standing with your classmates:

1. *Take part in clubs and class activities.* You can afford the time, and you will get fun and good fellowship from them. Organizations like science, book, or camera clubs provide excellent opportunities to make friends with other students who have similar interests. And once you join an organization, be an active, working member.

2. *Go out for some type of sport.* Bright students sometimes avoid athletics when they cannot excel in them. Boys who have skipped grades

are sometimes unhappy because they are too small to make the teams. But there are other sports such as track, tennis, or swimming, where size is not a handicap. An interest in sports is normal for teen-agers. Cultivating one will not only help make you "one of the gang," but it will be good for you physically.

3. *Volunteer to help others when you think your help will be welcome.* Find ways to be of service. Remember that thoughtfulness and concern for the wishes of others are qualities that are always appreciated and that will help you overcome your own self-consciousness.

Taking part in a sport will give you an interest to share with others.

4. *Don't be too sensitive about fancied slights.* Usually they aren't intentional, and if they are, you magnify them by taking notice. Let your sense of humor see you through.

5. *Avoid eccentricities of dress or manner.* While conformity in thinking is not a virtue, it isn't necessary to shout your independence by your appearance. Well-adjusted individuals usually conform to the social standards of their group when no compromise of convictions is involved.

6. *Guard against being bossy or overly critical.* Even if you know you could do something better, stop and think twice before giving unasked-for advice. If you feel it's important to put your word in, do it as tactfully as possible.

7. *Wear your academic honors with becoming modesty.* Don't try to appear stupid, but don't flaunt a straight-A record. Your parents probably admire it—but don't expect your classmates to.

Problems may seem harder during adolescence, but this period is the best time to learn to live with others on an easy, give-and-take basis.

Living with yourself

Besides learning to live with others, you must learn to live with yourself. To do this comfortably, you must feel inwardly secure and not weighed down with fears, self-doubts, and indecision.

Your early childhood experiences have a lot to do with your emotional stability. The child with a secure family life, with love and understanding from his parents, rarely develops major psychological problems. But children from less favorable emotional climates may be handicapped.

The child prodigy who is exploited by his parents and deprived of the normal playtime of childhood often becomes an unhappy, maladjusted adult. Even the bright child whose gifts are not exploited sometimes develops anxieties because he feels his parents expect too much from him. They may not realize how much pressure they are putting on him.

If you have felt that this is a problem for you, you mustn't blame yourself if you can't always live up to expectations. You'll have your bad days, like everyone else. You must learn to accept failure as something that occasionally comes to everyone. Failure—in a test, a game, or a bid for friendship—isn't always as serious as it seems. Other chances will come along, and in a few days you'll wonder why you were upset.

Disappointments are a part of life. Learning to accept them and to act constructively when faced with frustration is a necessary part of growing up. Many people who are adults in body and mind remain children in their emotions. They have never learned to control their feelings and are often moody and unhappy. They respond to stress situations in a childish fashion.

The person who is emotionally mature is able to cope with difficulties and disappointments calmly. He isn't troubled by excessive feelings of inadequacy or inferiority, by nervous fatigue or anxiety.

Problems of emotional adjustment can interfere with school achievement during adolescence. In his famous study of 1,500 gifted individuals, Terman found that nearly all did well in grade school. In high school, however, about one fifth of the group began to lag behind. Checking back when his subjects had grown up, Terman found that this group was much less successful vocationally and also had had more cases of serious emotional maladjustment. Lives that are blighted by emotional problems are always sad, but when the life is that of a gifted individual with such exceptional potentialities, the loss is tragic for him and for society.

If you feel that you have emotional problems too deep for you to solve yourself, the smart thing to do is to seek help. Talk them over with a counselor or a sympathetic teacher. If they can't help you, they can steer you to people who can.

Schools have neglected bright students

Besides learning to live with yourself and with others, you face another problem as a superior student—developing good work and study habits. Since you probably will be going to college and later will be employed in a job that demands your best mental efforts, you need to learn to study and work efficiently. Surprisingly, this is something that many bright young people never master, and it becomes a lifelong handicap.

School, like the outside world, is geared to the average. Its main concern is the vast body of average students, not the ten per cent on top. Relatively few schools provide special classes for the gifted.

In Greek and Renaissance times, gifted children were sought out and trained for leadership. Often they became proteges of kings or princes. But with the growth of democratic political philosophy, the idea developed that it is undemocratic to make special provisions for bright children. Even when schools have provided special classes for the mentally handicapped and special opportunities for those talented in music and art, some have inconsistently held to the theory that singling out intellectually gifted students for special attention is undemocratic. Children with high intelligence have been the most neglected group in our schools.

Today, this is changing, and more schools are trying to provide stimulating opportunities for their brightest pupils. There is also a return in some schools to the earlier practice of permitting superior students to skip a grade. Although educators for years have frowned on double promotions, research seems to show that one or even two years of acceleration doesn't hurt a child at all unless he is physically and socially immature. In Terman's group, those students who were accelerated walked off with more honors in college and were more successful in later life than those who stayed with their age group.

Still, most schools don't permit grade-skipping and do little to challenge the mental efforts of the bright. As a result, you may find yourself in a class with students your age who are two or three years behind your level of ability.

Study traps

It is very easy, under these conditions, to fall into sloppy work habits. Since you can do your assignments in half the allotted time, you may yield to a temptation to dilly-dally over them. When students who have never learned to buckle down and concentrate get to college, they sometimes have trouble. In college you will be competing with a much more select group, and more independent study will be expected of you. Some bright students even flunk—just because they never learned how to study.

Try to turn your brain power on full force when you do your schoolwork. See how well, how fast, and how efficiently you can do it. In this way you will cultivate study techniques that avoid the time-wasting habits so hard to break once they are formed. If you can finish classwork in half the time, your teachers probably will permit you to read a library book or to work on something else until others finish the assignment.

Unwillingness to do routine tasks is sometimes another problem for the exceptionally intelligent. Terman found that his gifted children were poorest in subjects that are learned largely by drill and rote memory—spelling, penmanship, and arithmetic computations. Even though these subjects may seem boring, it's good discipline to master them anyhow. No matter what your later life may be, it will almost certainly contain some dull routine. You might as well learn now to adjust to a certain amount of it. Besides, being able to spell, figure, and write legibly are pretty important assets. You may not be able to afford a secretary.

Even if learning is easy, good study habits help you learn better.

Verbal fluency, a distinguishing and valuable characteristic of the bright student, may encourage another bad habit—bluffing. If you're glib, you might be able to cover up the fact that you didn't study your lesson—but the only person you have cheated is yourself.

Similarly, the many-sided interests of bright students also hold a danger. Because students like you are interested in so many things, they sometimes are easily distracted from the business at hand. A well-disciplined mind that can concentrate amid distractions and not go wandering off on side trips is a great asset in college and in business.

These are some of the traps that gifted students easily fall into. They all grow out of the fine qualities of minds like yours. When you know where the pitfalls lie, you can avoid them if you will.

So you see, being bright has its problems as well as its promises. You may face some added complications in working out classroom and family relations, and you must beware of yielding to temptation to procrastinate and to be distracted from good, solid work. But to a bright mind, problems like these are a challenge, not an insuperable obstacle.

MEETING THE NEED

You have probably discovered by this time that much of this booklet has resembled a pep talk. It's no secret. Our purpose is to help teen-agers like you realize more fully what it means to be bright. We believe that if you know how exceptional this is and how far it can carry you toward a successful career and a rich and happy life, you are more likely to live up to your potential.

You are on the threshold of adult life. The decisions you make in the next few years about your educational and vocational goals will shape your future. We hope that you will weigh the opportunities that are yours very carefully.

"Know thyself," the philosopher Socrates said. Certainly the gifted student should know all he can about his own strengths and weaknesses, his interests, and his problems. Only then can he plan to use his unusual abilities to the fullest, finding greater personal happiness and fulfilling his obligations to society.

Although we believe that any bright young person will profit from reading about the implications of having brains, we have a special concern for one particular group of teen-agers, the bright students who are planning to by-pass college and who probably are not fully aware of what life can hold for them if they have a good education.

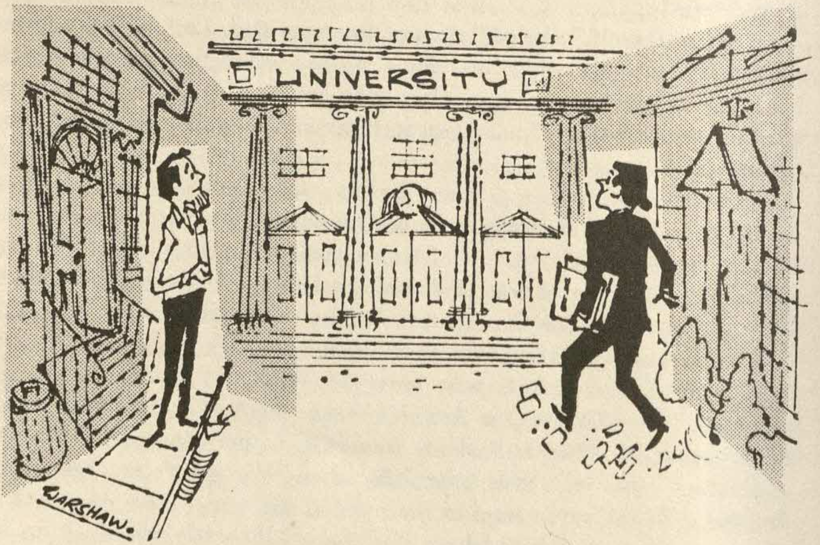
Unfortunately, this group is a sizeable one. Surveys show that at least half of the students who have the ability to succeed in college never get there. That means America is wasting half of her best brains. Each year some 150,000 students who rank in the top quarter of their graduating class end their schooling when they get their high school diplomas. Of the very cream of the high school crop—those who rank in the upper one per cent and have IQs above 145—fully one third do not enter college.

Even worse, each year some 60,000 gifted students drop out of high school *before* they graduate, thereby seriously reducing their chances of getting even moderately good jobs in today's competitive market.

Who are the dropouts?

Who are these students who fall by the wayside, constituting a tragic loss to themselves and to society? Most often they come from homes that lack a college tradition. They may be the sons and daughters of farmers or unskilled laborers. Often their parents, not realizing what opportunities their children are missing, expect them to become breadwinners as soon as they graduate from high school.

Many surveys have confirmed the fact that there is a close relationship between a father's occupation and whether his son or daughter gets a college education. One study found that 90 per cent of the superior high school graduates whose fathers were in the upper income bracket were attending college. But less than 20 per cent of those from lower income families got that far. Another survey revealed that three times as many children of professional people attend college as children of craftsmen and unskilled factory workers.



Deciding about college is more difficult for gifted students from homes lacking a college tradition. Many stop short with a high school diploma.

Far fewer sons and daughters of farmers continue their education than children who live in cities. Geographical location also seems to have a bearing. Southern states have the lowest percentage of students attending college. According to a study of college enrollment in 1949-50, Utah rated highest among all states, with 30 per cent of its college-age youth in school. Washington, D. C. and New York State ranked next.

There are fewer women than men in college. Although just as many high school girls as boys have superior intelligence, only one half as many go to college.

Negro youth are still another group that often waste their abilities by not continuing their education.

We need bright minds

In this day of increasing scholarship opportunities, the bright student who is determined to go to college can get there, regardless of his family's financial status. In fact, the children with superior intelligence whose families are in the lower income brackets constitute America's greatest hope of solving the shortage of skilled manpower.

There is a critical shortage of trained men and women in nearly every field that needs brains. In some areas, the shortage is a threat to America's national security and to our standard of living. Society has become so complex that it takes more and more bright minds to keep it running. The relatively few people like yourself who have superior intelligence are largely responsible for the advances society makes, and will continue to make, on all fronts.

America cannot increase the amount of brains in your generation. She can only hope that fewer brains will be wasted. And that problem is squarely up to you.

FOR MORE INFORMATION . . .

To supplement the information in this booklet, ask your counselor or librarian about some of the following materials. They are available at your school or public library. You will also find information about specific occupations helpful. Ask your librarian about occupational brief series that are available.

Choosing Your Career. Rev. ed. *J. Anthony Humphreys.* Chicago: Science Research Associates, 1960. This booklet discusses facts you should consider in planning your career.

College Catalogs. For information about courses of study, costs, financial aid, and other aspects of college life, you will want to examine the catalogs of colleges to which you are applying.

College Finder. *Robert Shosteck.* Washington: B'nai B'rith Vocational Service Bureau, 1955. This guide tells what you should look for in choosing a college and provides an easy and efficient method for finding those colleges that will meet your particular needs.

Discovering Your Real Interests. *G. Frederic Kuder and Blanche B. Paulson.* Chicago: Science Research Associates, 1949. This booklet discusses the importance of your interests for success in school, leisure-time activities, and your future career.

Mental Abilities of Children. *Thelma Gwinn Thurstone and Katherine Mann Byrne.* Chicago: Science Research Associates, 1951. Although this booklet is written for parents and teachers, you will find it helpful too. It explains what intelligence is and how it is measured by standardized tests.

Scholarships, Fellowships and Loans. *S. Norman Feingold.* Boston: Bellman Publishing Company, 1955. A basic reference for scholarship information, this book lists the funds available, agencies who administer them, what qualifications are necessary, and where to write for application and further information.

They Went to College. *Ernest Havemann and Patricia Salter West.* New York: Harcourt, Brace and Company, 1952. This book is a description of American college graduates based on a survey made by *Time* magazine.

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